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Title TI [] LUBRICATING OIL COMPOSITION

Applicant PA TONEN CORP

Inventor IN TOMIZAWA HIROTAKA ; ARAI KATSUYA

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Abstract AB PURPOSE: To obtain an lubricating oil composition comprising a specific lubricating base oil, a specific diarylamine compound and a specific molybdenum compound in specified ratio, excellent in heat resistance, oxidation stability, and low abrasion resistance, and suitable for internal combustion engines, etc. CONSTITUTION: This lubricating oil composition comprises (A) a lubricating oil base oil containing ≤ 3 wt. of aromatic components, ≤ 20 wt.% of monocyclic naphthene components, ≤ 50 ppm sulfur content and ≤ 50 ppm of nitrogen content, and having a viscosity of 2-50mm at 100°C, (B) one or more kinds of diarylamine compounds of formulas I (R^1 to R^4 H, 1-18C hydrocarbon) and II (R^5 , R^6 are R^1) in an amount of 0.05-3wt.% based on the whole weight of the composition, and (C) one or more kinds of molybdenum compounds of formulas III (R^7 , R^8 are 5-23C hydrocarbon; $m+n=4$), IV (R^9 , R^{10} are 1-18C hydrocarbon; $x+y=4$), and V (R^{11} , R^{12} are 1-30C hydrocarbon; X, Y are O, in an amount of 50-2000ppm (as molybdenum) based on the whole weight of the composition. COPYRIGHT: (C)1995, JPO

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PATENT ABSTRACTS OF JAPAN

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(71) Applicant: TONEN CORP

(72) Inventor: TOMIZAWA HIROTAKA
ARAI KATSUYA

(54) LUBRICATING OIL COMPOSITION

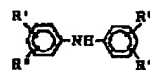
(57) Abstract:

PURPOSE: To obtain an lubricating oil composition comprising a specific lubricating oil base oil, a specific diarylamine compound and a specific molybdenum compound in a specified ratio, excellent in heat resistance, oxidation stability, and low abrasion resistance, and suitable for internal combustion engines, etc.

CONSTITUTION: This lubricating oil composition comprises (A) a lubricating oil base oil containing ≤ 3 wt.% of aromatic components, ≈ 20 wt.% of monocyclic naphthene components, ≤ 50 ppm of sulfur content and ≤ 50 ppm of nitrogen content, and having a viscosity of $2-50 \text{ mm}^2/\text{s}$ at 100°C , (B) one or more kinds of diarylamine compounds of formulas I (R^1 to R^4 are H, 1-18C hydrocarbon) and II (R^5 , R^6 are R^1) in an amount of 0.05-3wt.% based on the whole weight of the composition, and (C) one or more kinds of molybdenum compounds of formulas III (R^7 , R^8 are 5-23C hydrocarbon; $m+n=4$), IV (R^9 , R^{10} are 1-18C hydrocarbon; $x+y=4$), and V (R^{11} , R^{12} are 1-30C hydrocarbon; X, Y are O, S) in an amount of 50-2000ppm

(as molybdenum) based on the whole weight of the composition.

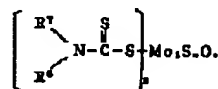
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I



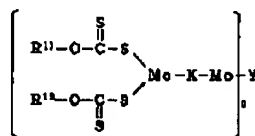
II



III



IV



V

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Japanese Laid-Open Patent Publication (Kokai) No. 286190/95

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Filed : March 31, 1994

Inventors : H. Tomizawa and another

Applicant : Tonen K.K.

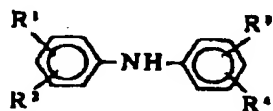
Title of Invention: Lubricating Oil Compositions

Claim

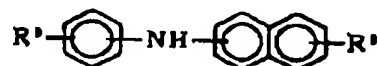
1. A lubricating oil composition characterized in that:

(A) a lubricant base oil having an aromatic group content of 3 % by weight or less, a monocyclic naphthene content of 20 % by weight or more, a sulfur content of 50 ppm by weight or less, a nitrogen content of 50 ppm by weight or less and a viscosity at 100° C of 2 to 50 mm²/s, is mixed with

(B) 0.05 to 3 % by weight, based on the total weight of the composition, of at least one substance selected from among diarylamines represented by the general formula,

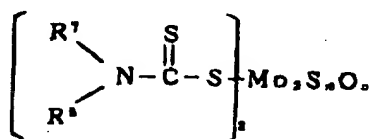


wherein R¹, R², R³ and R⁴ each denote a hydrogen atom or a hydrocarbon radical having 1 to 18 carbon atoms, and they may be the same or different, but at least one of them is a hydrocarbon radical, and by the general formula

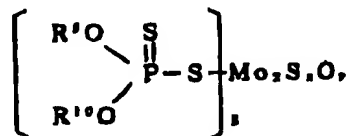


wherein R⁵ and R⁶ each denote a hydrogen atom or a hydrocarbon radical having 1 to 18 carbon atoms, and

(C) 50 to 2000 ppm by weight, as the amount of molybdenum, of at least one substance selected from among sulfurized oxymolybdenum dithiocarbamates represented by the general formula,

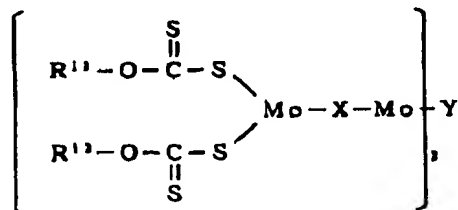


wherein R^7 and R^8 each denote a hydrocarbon radical having 1 to 23 carbon atoms, and they may be the same or different; and m and n each denote a positive integer, provided that the sum of m and n is 4, sulfurized oxymolybdenum organophosphorodithioates represented by the general formula,



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wherein R^9 and R^{10} each denote a hydrocarbon radical having 1 to 18 carbon atoms, and they may be the same or different; and x and y each denote a positive integer, provided that the sum of x and y is 4, and sulfurized oxymolybdenum dithioxanthogenates represented by the general formula,



wherein R^{11} and R^{12} each denote a hydrocarbon radical having 1 to 30 carbon atoms, and they may be the same or different; and X and Y each denote an oxygen atom or sulfur atom, and they may be the same or different.

Detailed Description of the Invention

..... (omitted)